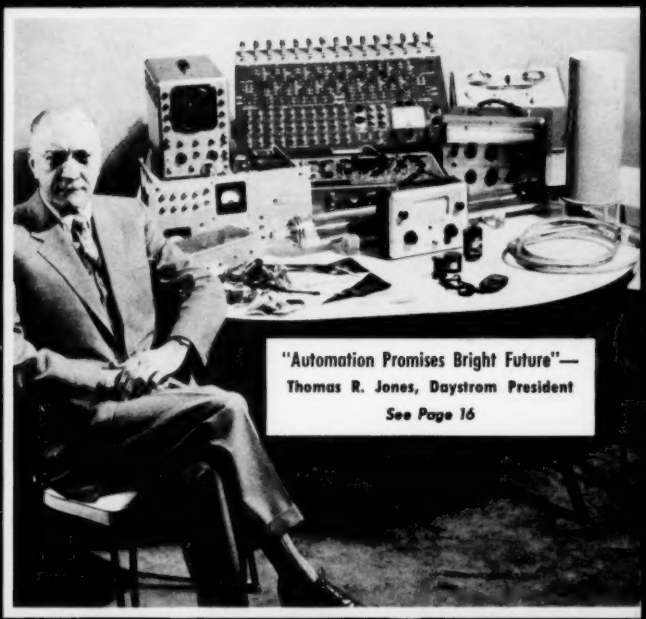
NOVEMBER / 1960

Manage



"Automation Promises Bright Future"—
Thomas R. Jones, Daystrom President
See Page 16

- ORGANIZATIONAL EFFECTIVENESS UNDER STRESS
- NEW FRONTIERS FOR SCIENCE
- FUNDAMENTALS . . .
  MOST OVERLOOKED FACTOR IN ORGANIZATION

"Selling America"

To One Million Americans

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A program that teaches participants the principles of the American private enterprise system, "Selling America" is designed so that it can be understood by high school students, but it is sophisticated enough to be shown to service clubs, teachers and executive management.

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Manage

VOLUME 13 NOVEMBER, 1960 NUMBER 2

FEATURES

SPECIAL REPORT

DEPARTMENTS

OUR COVER

Thomas Roy Jones, president of Daystrom, Incorporated, manufacturer of electronic equipment, does not believe automation will bring unemployment, but rather will upgrade workers and increase their individual productivity. He also believes automation will increase the quality of industry's products and avoid waste. ***(See page 17)***

MANAGE is published monthly on the 25th by THE NATIONAL MANAGEMENT ASSOCIATION (formerly The National Association of Foremen) as its only official publication. Second class postage paid at Dayton, Ohio. Printed in the U. S. A. Publication office 230 West Fifth Street, Dayton 2, Ohio. All address changes and publications returned under postal regulation 3579 should be sent to editorial offices in Dayton. Editorial and Executive offices: 333 West First Street, Dayton 2, Ohio. Copyright 1960 by The National Management Association. Subscription rates: annual U. S., $5.00; foreign, $7.50; single copy, 50 cents.

CIRCULATION THIS ISSUE: OVER 70,000, DOMESTIC AND FOREIGN.

FUNDAMENTALS . . .

Universal principles are rare in management, which is at best an inexact science.

The search for such principles has been most successful in the area of organization structure.

Whatever the type of work to be done, the necessity for dividing it among the people who are to do it and for clearly assigning authority and responsibility, is self-evident. The specific organization structure best suited to a given company depends on such factors as the nature of the business, its objectives, its size, the degree of centralization, the degree to which it is subject to government regulation, and the like. But managers over the years have had little difficulty in agreeing on the basic principles that should govern the design of an organization, even though these principles are logical and empirical rather than "scientific."

Organization may be defined as a planning process by which we fix responsibilities, delegate authority, and establish proper communications and working relationships among groups and individuals to accomplish specific company objectives.

It follows, therefore, that the determination of company objectives and purposes must precede organization planning. Until goals are set, there is no reason to organize or to reorganize. We do not change structure just to have a better-looking chart; all organization change is for the purpose of management improvement through which tangible results can be realized.

All managers at all levels have responsibility for organization. It begins with the chief executive officer and extends to the first-line supervisor.

Over-all responsibility for a sound structure definitely belongs to top management. The chief executive must determine the broad division of functions throughout the company in addition to detailing the major responsibilities of the individuals reporting directly to him. The company's long-range plans and objectives are formulated at that level, and proper organization by top management

Most Overlooked Factor in Organization

by M. L. Clough

is essential to their accomplishment.

Just as top management accepts its responsibility for overall organization, each succeeding level of management must accept its responsibility for organization in its own area of operations. Managers at each level, therefore, should:

1. Identify major objectives and purposes for the departments under their jurisdiction.

2. Determine what activities in their departments are necessary to carry out those objectives.

3. Determine the best possible pattern of organization for their departments.

4. Fix responsibility within their departments for the accomplishment of those objectives.

5. Establish proper communications and relationships to unify all efforts and develop team spirit.

This process is the same at every level of management. The difference lies not in the process itself but rather in the scope of responsibility and authority of the job and the direction of detail.

Some Cardinal Principles

In carrying out this process, successful companies have usually followed much the same practices; companies that have failed to apply these practices have usually been less successful. From this experience have evolved certain cardinal principles for setting up an organization:

Cardinal Principle 1

Basically, the organization should be built around the main functions of the business and not around an individual or group of individuals.

Organization should determine the need for people instead of being dictated by personalities. It is essential to design an organization that will best serve the purposes of the company, and then select executives who are qualified for the positions created.

Organization is, of course, a living thing; we are an organization of people, not boxes on a

chart. However, organization planning must be done objectively with concentration upon the proper placement of function. This is not to imply that people are not important and should not be considered. But the consideration given to them should be within the framework of an objective approach based on the degree of importance allocated to each function.

ABOUT THE AUTHOR

M. L. Clough is Northeast Regional Manager for Ebasco Services Incorporated, a leading management consulting, engineering and construction firm.

Operating from Ebasco's New York headquarters, Mr. Clough represents the firm's management consulting services to clients and prospective clients located in the Northeastern part of the United States as well as in Europe, Central and South America, and the Orient.

Mr. Clough has had extensive experience in the management field. Prior to joining Ebasco, he was senior staff consultant to SIMCA, second largest automobile producer in France. Previously he was director of management development for Studebaker-Packard Corporation; management training advisor for Bigelow-Sanford Carpet Company; and director of the management training program for E. R. Squibb & Sons.

He is vice-president of the New York Chapter of the Society for the Advancement of Management.

Earlier, he was affiliated with The Citadel as assistant professor in management and with the United States Office of Education as an instructor in management training.

Mr. Clough attended Ohio State University and Washington College. He received a masters degree in business administration from the Wharton School of Finance, University of Pennsylvania.

Adjusting the available people to the organization's needs—and adjusting the organization to personality conflicts and executive whims—is a skill involving the development of these people and good, practical judgment.

Ideally, executive development and organization development should occur together. However, this may not be immediately practical. Executives with the required abilities may not be available, or there may be men of unusual ability who can carry more duties than the organization structure contemplates. Adaptations of these conditions, however, should be recognized as temporary, and plans should be laid for a return to a more logical pattern when replacements are to be made.

Obviously, it is necessary to blend organization planning and executive planning. But the blending process should not be allowed to pull the organization structure completely out of line.

Cardinal Principle 2

Functions should be broken down so as to promote balance in the organization, while avoiding duplicating or overlapping functions and the neglect of essential functions.

Charts I, II and III illustrate this demarcation of responsibility. Note that gaps of responsibility cause non performance; overlaps of responsibility produce duplication of performance; while the zone of cooperation makes for effective performance.

Chart I shows graphically that executives A, B and C are too far apart. Each is operating

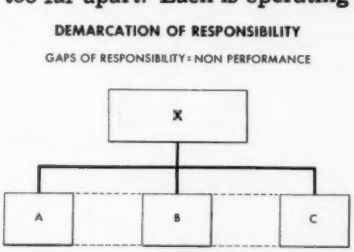


Chart I

by himself with blinders on, so to speak. As a result, some functions are being omitted.

Chart II shows that executive A is operating too far into the province of executive B; B is operating too far into the province of both A and C; and

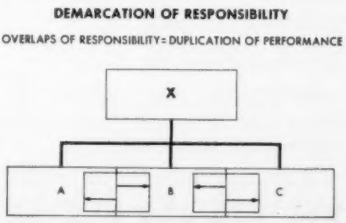


Chart II

C is operating over the line in the province of B. This ill-defined functional set-up results in duplication.

However, in Chart III, there is an area of cooperation, understanding and communication.

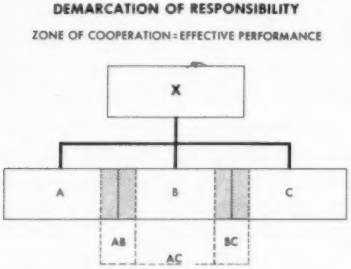


Chart III

In this case, A, B and C, are working so as to promote effective cooperation. This chart also points out that:

No job stands alone.

An organization is balanced when the various functions have been defined and described in strict accordance with the relative importance of their contributions to the company's objectives.

Cardinal Principle 3

Responsibilities should always be delegated with commensurate authority.

If an individual is to fulfill a responsibility, he must be given authority equal to that responsibility. Otherwise, the responsibility is reduced to the size and weight of the authority. Conversely, delegation of authority in excess of responsibility has the effect of increasing the responsibility.

It is not possible to charge an individual with responsibility and at the same time deprive him of the equivalent authority. Lacking authority, he has actually been relieved of his responsibility and the accountability therefor.

Cardinal Principle 4

The organization should permit and encourage each executive to exercise the maximum initiative within the limits of his delegated authority.

Thus each individual is made to feel a proprietary responsibility for his activities. This makes it possible for ideas to be originated at the lower levels of the organization and to flow, by upward communications, to the higher levels of management. This stimulates all members of management to discover, to create, to initiate and to decide.

When this responsibility for upward communications is made a part of every manager's job, then it becomes a source of profitable operation.

Cardinal Principle 5

Authority for decision-making should be delegated to the lowest level where the facts and the capacity exist, and to the point at which action takes place.

The authority delegated for making decisions carries with it a commensurate responsibility for the quality of decisions which are made. The quality of decisions made at action points, in turn, determines the degree of effectiveness and speed of operations which is possible. Speed of decision-making gives an organization flexibility of movement so that it can take immediate advantage of all opportunities for effective action.

Cardinal Principle 6

Each executive should have a reasonable number of subordinates reporting directly to him.

This number is related to the type of direction and control he must exercise over his subordinates, together with the latitude in decision-making that is extended to them.

The most satisfactory plan of control is one that avoids an overlong chain of command (or levels) but at the same time does not overtax the executive's mental and physical capacities. The advantages of increasing delegation to a greater number of subordinates must be weighed against its disadvantages; in this light the span of control should be increased or decreased until the two are in balance.

Charts IV, V and VI illustrate a narrow, a medium and a broad span of control.

These charts demonstrate how spans of control may vary within the same company. Chart IV shows a narrow span of two; Chart V, a medium span of five; and Chart VI, a broad span of 20. All are satis-

NARROW SPAN OF CONTROL

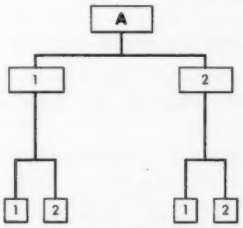


Chart IV

MEDIUM SPAN OF CONTROL

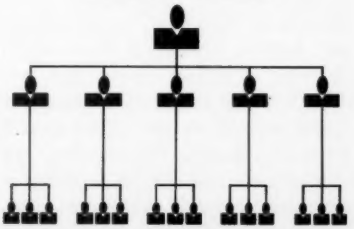


Chart V

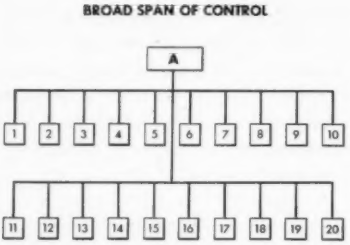


Chart VI

factory for the managers concerned.

The nature of the work and the degree of delegation that is possible determine the appropriate span of control rather than any rigid formulas based on predetermined minimums or maximums.

Cardinal Principle 7

The number of levels of authority should be kept to a minimum.

Many levels make for a sluggish, slow-moving company. The company with only a few levels, in contrast, can move much more quickly.

A common communications difficulty that is accentuated by adding levels is that often labeled layering. This term refers to insistence that communications flow exclusively up and down channels. "Going through channels" results in having a communication pass through several layers of management in order to get from one part of the company to another. Often it winds up in a garbled mess.

Contacts between units should be carried out in the most direct way possible, but at the same time it should be specified that each member of the organization should keep his superior fully informed regarding any problems arising out of such contacts. This is illustrated in Chart VII.

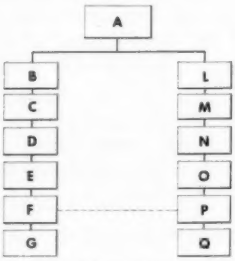


Chart VII

In this situation, F contacts P directly. F keeps E advised, and P keeps O advised. Otherwise, the communication would have to travel laboriously upward from F all the way to A, and then downward from A all the way to P. The same involved procedure would be required in reverse order for the return of the contract.

The number of levels and the span of control are interrelated, as shown in Chart VIII. In fact,

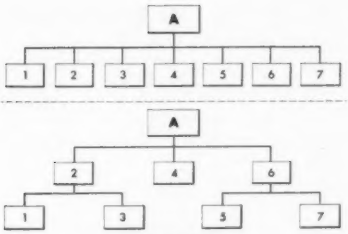


Chart VIII

there is an inherent conflict between them. The smaller the span, the greater the number of levels, and vice versa.

Cardinal Principle 8

No one in the company should be accountable to more than one superior.

Multiple accountability plays havoc with organization discipline and eventually destroys morale and team spirit. Multiple accountability will lead to poor morale for either a conscientious or an indifferent subordinate. The conscientious man will feel frustrated if he cannot live up to what is expected of him; an indifferent one will stop trying since he obviously can't do all that has been requested. Both of them sooner or later will be reprimanded for failing to comply with instructions.

Cardinal Principle 9

Identical directives through assignments should never be given to two individuals.

Adherence to this principle can prevent overlaps and gaps of responsibilities, assure the execution of complementary functions, and develop ineffective team spirit.

Sometimes similar (though not identical) assignments are given to several individuals. In this case, it is good practice to explain the similarities and to point out the differences so as to prevent misunderstanding of assignments. This is often done by means of an operations conference in which questions may be asked, suggestions given, and assignment details clarified. Use of this technique can prevent individuals from working at cross purposes when their work is intended to be complementary.

It is important to recognize the fine line of demarcation that exists between the responsibilities of different positions. It is also important to recognize the necessity for a zone of cooperation, for communications and for teamwork:

No job stands alone.

Cardinal Principle 10

It is an axiom of good management that the line and staff must cooperate; concur in each other's actions insofar as they are related and work willingly

together in all undertakings if the goals of the company are to be achieved effectively.

As functional specialists, staff executives serve as advisors to both the chief executive officer and the line operating executives. Through the established line chain of command, they exercise functional control in the operating groups. This does not mean that staff executives issue line orders or direct line activities or directly control any portion of the operating groups. After achieving reasonable concurrence by the line executives, staff executives recommend functional policies to the chief executive officer. Once he has approved these policies, he establishes procedures in conformance with the policies.

After both policies and procedures have been established, the staff executive within whose province a particular function falls furnishes the appropriate line executive with technical or specialized advice and assistance on how to do the job.

Staff executives are responsible for furnishing this functional guidance and for auditing operations to ascertain the performance status. They are also responsible for instituting corrective action and for seeing that such action is taken through the line chain of command.

The line executives propose operating objectives or goals for their undertakings to the chief executive for his approval, after consultation and concurrence with responsible staff executives. Once these objectives have been approved, the line executives, in accordance with established company policies and procedures, then executively direct all functions within their operations.

The line executives are accountable to the chief executive for the fulfillment of their responsibilities, including the proper application and use of the functional guidance which they receive from the staff. In no case are line executives subject to direct orders from or supervision by staff executives, nor are they at any time held accountable to the staff. That would create multiple accountability.

Policies and procedures encompass the broad framework within which the company will operate. While all executives must follow these established policies and procedures in carrying out their activities, this does not preclude the use of their own ideas in implementing company policies and procedures within their own

area of operation. In fact, such initiative is to be encouraged. Policies and procedures are not ironclad rules that unnecessarily restrict independence of executive thought and action. Rather, they are guides to executive action in accomplishing the company's objectives.

In determining what is to be done and when it is to be done in operations, the line executives must use their leadership skills and be able to exercise independence of thought and action in getting their job done. In this manner, the line and the staff each perform their respective and different responsibilities, working together to accomplish the company's objectives.

The difference between the role of the "assistant" and the "assistant to" illustrate the difference between line and staff functions.

The "assistant" is in the direct chain of command of his immediate superior. His is a line function. He performs, on a regular or assigned basis, any or all of the functions associated with the responsibilities of his immediate superior. This position is often created as a training post for the eventual replacement of the superior.

The "assistant to," in contrast, is not in the direct chain of command. He serves as a general or technical staff assistant to his immediate superior. In this capacity he may relieve the superior, either by special assignment or on a continuing basis, of details and certain clerical and coordinating activities. Use of an "assistant to" often enables the superior to extend his personal scope and guidance over a larger functional area more effectively during periods of growth or other functional complexities.

As an individual on special assignment, the "assistant to" enables the superior actively to direct, coordinate and control special functions of high technical or management importance without an increase in executive time or in span of supervision. It is a flexible and often useful organizational device.

The use of one of either of these two positions does not in any way preclude the use of the other; they in no way conflict with each other but rather complement each other. Both serve to enable an executive to perform more effectively.

Importance of Structure

Organization is sometimes undervalued by those who feel that with the right men almost any kind of organization can run well. This seldom proves to be true. Even with the finest people, an illogical structure

creates waste because it fails to retain and develop good men and enlist new men of high quality. Capable men are essential to achievement in any endeavor, of course, but the efforts of even the highest-calibre people can be dissipated through lack of organization.

Defective structure works its greatest havoc on the future because of failure to provide flexibility for meeting new situations. An expansion may throw the whole company out of balance, or the loss of a few key individuals may leave the company floundering without executive leadership. Thus, lack of organization saps the vitality of a company.

Only through organization can a company provide the basis for estimating manpower requirements and thus establish a system for executive succession and replacement. Chart IX shows an example of executive planning based upon organization planning.

At a glance we can see that in this department of 13 key men, the situation is as follows:

Available replacements are 10.

Present manager vacancies are 0.

Present manager unsatisfactory is 1.

Manager replacements needed are 4.

Chart X shows a summary—on the left side, what exists, and on the right side, what is needed.

Thus the work of organiza-

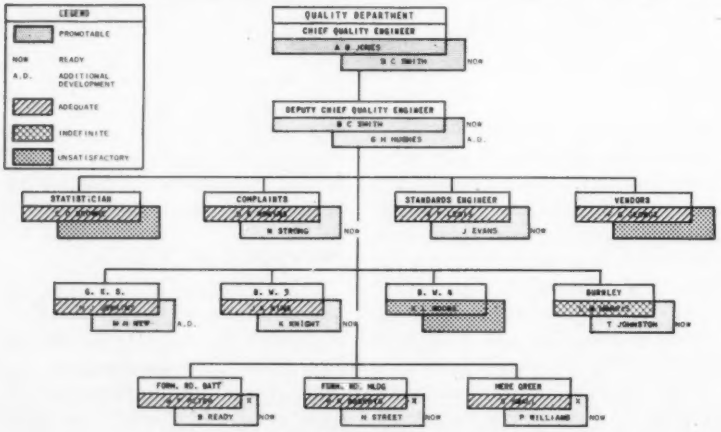


Chart IX

SUMMARY - SENIOR DEPARTMENT POSITIONS.....13
AVAILABLE REPLACEMENTS (NOW)..... 8
AVAILABLE REPLACEMENTS (AD)..... 2

PRESENT "MANAGER" VACANCIES.....NIL
PRESENT "MANAGER" UNSATISFACTORY..... 1
REPLACEMENTS NEEDED..... 3
EXPERIENCED RECRUITS NEEDED..... 4

QUALITY DEPARTMENT	INCUMBENT	REPLACEMENT	READY	REMARKS	ACTION
CHIEF QUALITY ENGINEER	A.B. JONES (54)	B.C. SMITH (42)	NOW		
DEPUTY CHIEF QUALITY ENGINEER	B.C. SMITH (42)	G.H. HUGHES (32)	AD	B.C.S. IS A POTENTIAL FACTORY MANAGER	FACTORY MGR. BURNLEY 1960
STATISTICIAN	C.D. BROWNE (30)	VACANT		TO BE REPLACED FROM OUTSIDE	RECRUIT JUNIOR I# 1960
COMPLAINTS	D.E. ROBINS (44)	M. STRONG (25)	NOW		
STANDARDS	E.F. LEWIS (51)	J. EVANS (27)	NOW		
VENDOR QUALITY	F.G. GEORGE (60)	VACANT		REPLACEMENT URGENT IN VIEW OF F.G.G.'s AGE	FILL VACANCY BY JULY 1959

Chart X

tion is never done, for it must be continuously adapted to new and challenging conditions; timing is of the utmost importance. Formal organization teaches managers to know and help their own business associates and provides a blueprint for teamwork, team spirit and a team result.

These are the basic steps in attaining a sound, flexible and dynamic organization:

a) Determine the objectives —and the policies, programs and plans that will best achieve these objectives—for the company as a whole and, in turn, for each component of the business.

b) Determine the work to be done to achieve these objectives.

c) Divide and group related work into a single, logical, understandable and comprehensive structure.

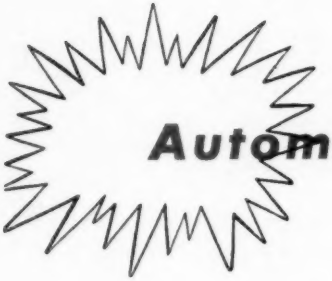
d) Assign responsibilities and work to the various components and positions in the organization.

e) Determine the qualifications of men to occupy such positions.

f) Staff the organization with men who meet these qualifications.

g) Establish communications and foster the leadership which will achieve the goals of the company.

And, finally, keep in mind that time will be required to implement the organization structure with men who have understanding and enthusiasm.



Automation and America's Future

by Alfred K. Allan

Automatic factories are on America's horizon, but this won't mean extensive unemployment. This is the opinion of Thomas Roy Jones, the president of Daystrom Incorporated, a leading producer of electronic equipment.

"I'll go even further," Jones says, "More men and women—skilled technicians rather than old-fashioned labor—will be needed than ever before in our history."

Jones sees the future of industry in this way. "Number One will be the complete automation of continuous manufacturing processes; the automatic factory will be commonplace."

"Second will be nuclear energy. Just as water power, electrical energy and the internal combustion engine wrought revolutionary changes in our economy and brought new levels of prosperity, nuclear energy will become a boon to mankind."

Technological unemployment, Jones believes, will be only temporary and limited to small segments of industry. Management, Jones points out, will overcome technological unemployment by teaching workers new skills and by fitting workers into the ever-expanding services and new industries created by advanced technologies.

"The true role of automation," Jones said, "is not to displace workers but to upgrade them

and increase their individual productivity—and to give all of us more and better goods and services. These are necessary if we are to achieve the standard of living to which we all aspire."

Jones believes that automation will increase the quality of industry's products and avoid waste. It will allow mass production of new products which cannot be made under present manufacturing processes. It will also produce purer and more accurate products through instantaneous computation and decision and through its elimination of human error.

"Our undeniable need," Jones is convinced, "is an ever-increasing productivity per employe. Automation promises a bright future for industry through higher productivity; for workers, through jobs that will pay better and be less menial, and for consumers, through lower costs and better products."

Better Business Letters

The Alexander Hamilton Institute points out that, "A successful business letter does not depend upon books or rules. The business correspondent should have a clear understanding of his responsibility to the man at the other end of a bargain and be dominated by a willingness to serve well."

The Institute offers these suggestions for better business letters:

1. Know your job from A to Z. This way you can compose a message that will impress the reader.

2. Like your job. This way you can put into your letter the necessary enthusiasm, sincerity and liveliness.

3. Learn as much as you can about your readers and about their business.

In composing your message, the Institute advises that you "have something to say, understand clearly just what it is you want to express, approach your message from the reader's viewpoint. Remember that your reader is interested primarily in himself, not you. He doesn't particularly care about what you are selling. What he wants to know is how what you are selling will benefit him. If you can offer him help in solving his problems you'll catch his interest. Your letter should be written so the reader will clearly understand what you're talking about."

The actual message itself should be composed with these points in mind:

Get right down to business

immediately, be brief, use simple words and simple expressions, don't try for "cleverness," beware of humor, and be careful of slang.

A successful business letter should convince the reader, in both tone and manner, that you believe in your message. Be sincere and your reader will accept your sincerity. Be courteous. Don't argue. Be yourself, express your own personality. Don't be stiff, formal and cold. Be friendly. Your readers are not enemies unless you make them so. When you've said what needs to be said—stop.

"The rule of rules for every sort of written or spoken communication," the Institute concludes, "is first, have something to say; second, know what you want to say; third, say it; fourth, stop."

Pension Funds—Profit for All

Private pension funds now cover one fourth of all persons employed in private industry. These funds are rising at a rapid pace, bringing into effect true security for *all* Americans.

This was one of the conclusions of a comprehensive study of pension funds recently completed by The Twentieth Century Fund. Assets of public and private pension and retirement funds grew from $36.5 billion in 1950 to $80.6 billion in 1957, the 20th Century Fund found. Private pension funds have been growing at a faster rate than old-age insurance and other public retirement funds. The assets of private pension funds nearly tripled between 1950 and 1957, and they are continuing to grow at a rate well over $4 billion a year.

The 20th Century Fund believes that private pension funds are now a major force in American economy. They now represent huge reservoirs of capital wealth available for investment in our country's future development. Private pension funds now buy more than one fourth of all the new stock issues that appear each year, more than any other type of institution and almost as much as all individual purchasers put together.

These pension funds pose an unusual paradox. They are not actually owned by individuals, the way people own a car or TV set. The people who "own" the funds collectively can do little about them individually in respect to how the plans are set up, how the assets are invested and how the plans are managed.

"This is a new situation which we now have to face," The 20th Century Fund points out. "Such vast accumulations

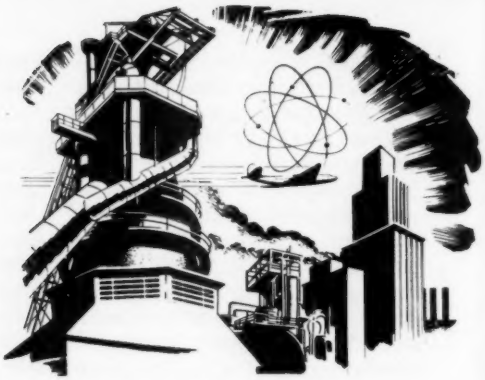
of capital pose problems of control and management that are not yet fully understood or ironed out. But as the funds increase, management, unions, financial experts and legislators will be working to smooth their way into American life. In the meanwhile, millions of Americans are already enjoying the fruits of the pension funds. And more and more people in the America of today and tomorrow are enjoying the feeling of added security they bring."

Office Practices

The National Office Management Association, in a recent survey of some 2,300 companies, found that some 75 per cent of the companies allowed their workers to smoke anytime they wished and some 80 per cent of the reporting companies had coffee breaks or rest periods. Christmas parties are still held by some 65 per cent of the companies and 40 per cent of them also have summer picnics for their workers. Some 89 per cent of the companies have set no actual rules for office dress, leaving this pretty much to the discretion of the workers.

There is relatively little discrimination against the hiring of married women with children. Some 86 per cent of the surveyed companies said they would hire such women and 61 per cent of them report that married women score up no more absences than any other workers.

America's senior citizens, like this couple, now have greater security because of increased pension funds.



Special Report

New Frontiers for Science

by Mark Metcalf

Science, making greater strides than ever before in history, is changing the present and the future of a whole group of industries in this country.

These are the "science industries"—such businesses as electronics, chemicals, drugs, rare metals, nuclear energy—that are pouring tremendous sums into research and coming up with a fantastic array of new processes and new products.

Changes are taking place so fast that most of us can't keep up with them. We read in the paper about a computer that multiplies 5,000 10-digit numbers in a second, about a camera that photographs a golf ball from 10 miles above the earth, about a tiny fuel element that draws energy from the sun and stores it up to help drive a motor or carry a voice over wires.

Yet many of us are coming to accept these wonders as commonplace, simply because of the rapid pace of development in today's research economy.

What is the real story behind the technological revolution in which we are all caught up? What does it mean to our future jobs—as supervisors and managers, as providers for our families, as householders interested in new products to enrich our everyday lives?

"Technology," one expert has noted, "is the great multiplication table. It is the margin between pint and bushel, between ounce and pound, between dozen and gross. In America, it is the margin between homespun and nylon, between the pot on the hearth and the eye-level oven, between root cellar and deep freeze, between plow and tractor, between wagon train and jet liner and, because the means must precede the fulfillment, the margin between Lincoln's lonely study by the light of the dying fire, and the scholarly haven of the Harvard Yard."

The advance of technology has been spurred by steadily-increasing spending for research by both industry and the government. Such spending now is at the rate of 12 billion dollars a year—more than 65 dollars for every man, woman and child in the U. S. That is more than double the amount that was spent for research as recently as 1953.

Not all of this spending is aimed merely at making life easier. Much of it is dictated by harsh military necessity—the need for new, more effective weapons in an era of continuing cold-war tension. But out of military research have come accomplishments that are showing up constantly in the form of new civilian products.

Satellites streaking across the skies have led to spectacular new fuels, new heat-resistant metals, new guidance and control systems.

Cramped quarters in missile and rocket assemblies have dictated important progress in "miniaturization"—the ability to whittle down the size of electrical circuits so they can fit into a tiny area. Now we are in the era of "molecular electronics," and, scientists say, we will soon be getting new electrical devices much smaller than anything today's electronics engineers have ever seen, or even dreamed of.

The need to solve complicated problems in space research has spurred new developments in the computer field. Today's speediest computers can do in a few moments mathematical tasks that once took months or even years. Miniaturization is permitting the production of small, tabletop computers that are as efficient as the room-size instruments of a few years ago.

Nuclear power, already harnessed to drive a submarine around the world without stopping, is being put to work in power plants that ultimately

will provide a new source of electrical energy.

Infrared "eyes" that cut through fog and haze, sonar devices that "hear" under water, optical devices that "read" printed matter and even translate foreign languages, are realities.

In the words of one industrial scientist, Dr. Clifford C. Furnas: "The results of science are cumulative, like the sustained thrust of a rocket motor. Each increment builds on what happened before, so the farther it goes, the faster it goes. The second important factor is military necessity. Modern war has become highly scientific. This has led to an interest in, and support of, science and technology without parallel in history."

In non-military fields, spending for research has been spurred by keen competition among companies in different industries. More and more companies face stiff competition from abroad. They are trying to combat it by bringing out new products and by applying new methods of production and new tools to the cutting of costs and the reduction of prices.

Evidence of the growing impact of science on industry shows up in many different ways. In the stock market, for example, electronics and other "science" stocks have soared into new high ground—at a time when the stock market generally has been declining or hesitant.

The classified sections of many daily papers contain page after page of want ads for engineers, technicians and laboratory and research specialists. Companies are making strong efforts to lure such workers, and to keep them from being "pirated" once they are on the payroll.

Companies in many lines are stepping up their research spending. In 1959, for instance, the drug industry spent about $200 million for that purpose, and one drug industry executive has forecast it will reach $500 million a year by 1970.

For all industry, annual research spending is expected to total $20 billion by a decade from now.

Here are some "capsule" glimpses of late developments in the "science industries" and the promise these developments hold for changing our way of living in days to come:

Electronics

In less than 30 years, electronics has moved from 49th place in the business world to fifth place, in terms of people employed. Today it is topped only by autos, steel, aircraft

and chemicals. Since World War II, electronics has expanded 12-fold.

One authority insists that within a decade or two, there will be no separate electronics business as such, because "all businesses will be in electronics to such an extent that they will need their own electronics departments."

Electronics manufacturing really covers four major fields —consumer goods, military equipment, industrial electronic items, and components. The relative importance of these fields is changing. For instance, between 1952 and 1958, the home entertainment field—radio and TV—dropped from almost 60 per cent to about 20 per cent of total electronics sales. The military share rose to more than 50 per cent.

Some of the most dramatic developments in technology are taking place in the electronics area. For example:

• A new infrared device permits the taking of accurate pictures in the dark. Infrared rays are actually heat rays. An infrared camera detects heat, measures it, and photographs it. The Tiros weather satellite contains such a camera whose eye sweeps across the earth and transmits images flashed to the ground by telvision devices. Non-military uses include cameras for the detection of "hot boxes" on railroad cars, and instruments to monitor and control temperatures of plastics, ceramics, textiles and paper.

• Electronic heating and cooling units for the home are under development, though still experimental. Operating silently, without moving parts, these units can be installed in side walls or ceilings. In the summer, they would cool the room; in the winter, they would heat it, simply by changing the direction of flow of electric current. This principle is called "thermoelectricity"—the conversion of heat directly into electricity without a battery or power plant. One company now is marketing a small thermoelectric generator that will run for a year on $10 worth of propane gas.

• A new system permits sending TV images over ordinary telephone wires. Live scenes, or written data, can be transmitted this way; equally important, a picture can be stored in an electronic tube, then viewed upon demand by pushing a button.

Computers

Electronic computers are new tools that can extend, by bil-

lions of times, man's ability to handle figures and solve mathematical problems.

In the words of one technician: "There's nothing a computer can do that a human cannot do—but the computer can do it millions of times faster."

In a few minutes, today's most advanced computer can do all the arithmetic ever done by hand in all recorded history.

Computers can store up vast amounts of information and instruction in their "memories." They can also make simple "yes-no" decisions on the data that are stored in these memory systems.

In the business world, computers work at lightning speed to figure payrolls, control inventories, run oil refineries, keep track of sales, route railroad cars. Computers are helping farmers pick pedigreed bulls, physicians diagnose illnesses, and department stores forecast what products will sell well next month. A computer is now at work translating Russian books into English.

What lies ahead? Electronic technicians say the day will come when a few reference libraries scattered across the United States will have millions of words of information stored in memory drums or magnetic tape. At the push of a button in his home the householder will be able to get any sort of question answered in a matter of seconds.

Other Business Machines

Besides computers, there are scores of other electronic machines, already on the market or under development, for coping with the rising tide of paperwork in business and industry.

One new electronic machine intended for department stores, can "read" ordinary business documents, and turn out a detailed report on 10,000 transactions in 12 minutes. Another machine can write the checks and prepare all the payroll records in half a day for an office or plant with 1,000 employes.

The Post Office Department is experimenting with a machine that can "read" names and addresses printed on envelopes or post-cards. Eventually, it's hoped, the postal service can be automated through the use of machines that can sort mail without human intervention.

A new high-speed process, named "Videograph," can extract information from a computer and print or display it at the rate of 20,000 letters or numbers a second. The device

can either print the data, or display it on a television screen. It can also instantly print pictures of moving objects as they pass in front of a TV camera.

Machines that "read" the account numbers printed on checks, tickets or bills are on the threshold of tremendous expansion in day-to-day use.

Already, a large part of the nation's banking system is being equipped with high-speed check-sorting machines, which replace human clerks in identifying and sorting checks drawn on individual accounts

Communication

Dozens of new developments in communications are in the works—for both householders and businessmen.

Many telephone subscribers now can dial direct from their homes to millions of other phones all over the country.

Next big telephone development likely will be the push-button phone, replacing the present dial instrument.

One company has developed a device that can transmit 3,000 words, via teletype, during a three-minute telephone call.

Another high-speed communications device transmits words instead of teletype signals at a rapid pace. But it "garbles" the words by converting them to electronic impulses. What was said comes out in an artificial voice at the other end of the wire.

Facsimile machines are growing in importance for communicating data from one place to another.

It is now possible to send a 600-word letter by Western Union facsimile from coast to coast in less than six minutes. The Post Office Department is experimenting with a facsimile system for transmitting letters by wire from Washington to Los Angeles. Others transmit blueprints, ledger pages, charts, maps and complex mathematical formulas, either from one division of a company to another, or between widely-separated plants or factories.

Fuel Cells

Just now coming out of laboratories and into experimental use are new sources of energy, called "fuel cells." The fuel cell is a device similar to a battery. It produces electrical energy through a chemical reaction. Unlike a battery, however, it does not run down, or lose strength, because a fresh supply of fuel is continuously fed into it. Electric power comes out as long as the fuel goes in.

Rare Metals

Rocket and missile development, as well as work in atomic energy, have focused attention on rare metals, and high-purity metals.

Some of these metals—such as selenium, germanium, bismuth, tellurium, titanium—were hardly known outside the laboratory a few years ago. Now they have important industrial applications.

Boron and lithium are used as fuel in some types of rockets.

Selenium and germanium form the heart of the electrical circuits in computers, and in transistor radios.

Chemicals and Plastics

The chemical industry is spending more than a half billion dollars a year for research into new products. Among the products now being discussed, planned or developed—

- Homes built mostly of plastics and special adhesives.
- Girders made of limestone, sea water and air—and yet stronger than steel.
- A plastic for moving parts, with a surface so slick it need never be oiled or greased.
- Lightweight clothing, to protect the wearer against cold, heat, toxic gases.

One important field, growing by leaps and bounds, is plastic films, used for packaging, for protecting products or crops from the weather, for all sorts of new applications.

NMA CLUB ANNIVERSARIES

NOVEMBER

5 Years:	San Juan Management Club	San Juan, P. R.
	Jacksonville Management Club	Jacksonville, Fla.
	Kentucky-W. Virginia Gas Company Foremen's Club	Prestonburg, Ky.
15 Years:	Greater Portland Management Club	Portland, Ore.
30 Years:	The Battle Creek Management Club	Battle Creek, Mich.

ACT ON FACT

by James M. Black

Bill Soder was boiling mad. His foreman had denied him overtime.

"Well," thought Bill, "he won't get away with it! I'll show him he can't push me around!"

Bill had just been elected shop steward, which entitled him to "superseniority." The contract said that the employe with the most seniority was entitled to any overtime he was capable of doing, and Supervisor Sheriff had given a job Bill thought he could do to another employe.

"When I filed a grievance asking for the overtime money that was rightfully mine, he turned me down. I won't accept his decision! I'll prove to him that a shop steward counts for something around here!"

Bill Soder's grievance went through every step of the procedure, but still he could get no satisfaction. Finally the dispute was heard by an arbitrator. Before we discuss the arguments, let us review the case.

Background of Dispute

For three years a certain employe at the engineering company where Bill Soder was employed had been regularly assigned to work with United States Government inspectors. It was required that he be familiar with the location of various items of freight packed in custom-made wooden crates for overseas delivery. He was also expected to accompany the inspectors and open crates so that they might examine their contents.

Ordinarily employes at this company worked an eight hour day five days a week—Monday through Friday. Because of an emergency situation, on one occasion it was necessary for the employe assigned to work with the Government inspec-

tors to do his job on a Saturday. It was this particular bit of overtime that got Bill Soder's dander up. He didn't find out about it until the following week, but he claimed because he knew how to do the job it should have been offered to him, since he was the high seniority man in the department.

Arguments of Parties

When the case came before an arbitrator, the union argued, "The contract gives a shop steward top seniority and preference of employment in work in his department so long as he is qualified to do it. Shop Steward Soder was capable of doing the overtime work that was done by another employe. Soder could read. He could use a crowbar to open a crate. He was available. The company failed to offer him the job, and it was only by accident that he found out about it. This in itself was an attempt to evade the contract. When Soder brought the matter to his foreman's attention, the latter denied his grievance and refused to pay him eight hours overtime for a job that was rightfully his. Soder's grievance should be sustained and he should receive the money due him."

The company answered, "Soder did not regularly perform the job in question; in fact, this particular work was the permanent assignment of the employe who received the overtime. It is true that to do the job an employe must be able to read and to use a crowbar. We admit Soder has these abilities. However, it is also necessary to know the location of the freight which the inspectors wanted to examine. This Soder did not know. Therefore it was only logical and proper that the employe who normally carried out these duties during the week should be asked to do them on Saturday.

"The contract does not stipulate that a shop steward be given jobs he normally does not do whenever they call for overtime. The 'superseniority' privileges that Soder enjoys are meant to protect his employment so that there will be continuity in union representation, even during lay-offs. The clause is not designated to permit him to take a look around the department each morning and decide what work he would like to do that day. Supervisor Sheriff was exactly right in assigning overtime as he did. This grievance has no merit. It should be denied."

Opinion of Arbitrator

The arbitrator delivered the following opinion.

"The agreement gives the shop steward top seniority and preferential employment so long as there is work available in the department which he is capable of handling. It would be fallacious to conclude from this that Shop Steward Soder was entitled to the work assignment in question. Quite clearly the provision he cites to justify his claim is designed to afford union stewards a degree of protection from layoff during times of workforce reduction. It is not the purpose of such a provision—as Supervisor Sheriff wisely pointed out in denying his claim—to give special treatment of a reward type to stewards as individuals. The object is to retain for the union an experienced representative at the job level even when there are cutbacks in employment.

"The union has argued that the employes ratified the agreement, and in so doing waived their personal positions in favor of their shop stewards at all times that the shop stewards are capable of performing the work at hand. If this claim were accepted as valid, a shop steward would have the right to move from job to job at his pleasure so long as he was capable of performing it. He could deprive other employes of overtime work in their regularly assigned jobs, even though their jobs differed from the work he normally performed. This, in essence, is what the union is arguing in this case.

"The contention is without merit. The only thing that the employes conceded to a shop steward when they ratified this agreement was that during his term of office he will not be laid off if there is work to be performed which he is qualified to do. The top seniority granted to a shop steward does not give him a prior claim on overtime assignments in his department just because he is a steward, and just because he is capable of doing the work and is willing to do it. This grievance is denied."

No One is Above Rules

Shop Steward Soder's attempt to grab another employe's overtime assignment illustrates what happens when a man gets the wrong idea about his job. A union is supposed to represent employes, and a union officer is supposed to be their advocate, not their exploiter. Yet all too often an inexperienced steward is all mixed up about his position. His authority goes to his head. He thinks plant rules do not apply to him, and is inclined to use the power of his position for his own advantage, believing that he is

entitled to special privileges because he holds union office.

Some supervisors hesitate to cross a shop steward. They prefer to give him plenty of latitude because they do not like to take the risk of getting into a dispute with him.

"The shop steward is backed by the power of the union," such a supervisor thinks, "and if he is disciplined for some rule infraction it will be difficult to make it stick. Even if it does, he'll go to work on me, stir up trouble, and I'll be flooded with grievances. The best thing to do is wink and let him go his way."

An attitude of this kind is the sure road to supervisory ineffectiveness. It encourages the shop steward in the belief that he is beyond the law and management is afraid of him. Soft, wheedling foremanship is no way to control an arrogant union steward. He refuses to stay appeased, and will probably continue to press his advantages until the supervisor is forced to act out of desperation. By then it may be too late.

The seasoned supervisor knows that a steward is an elected officer of the union who is expected to represent employes in matters regarding wages, hours and working conditions. He respects the steward's right to do this and does his best to work with him on a cooperative basis in the interest of the orderly operation of the department and the welfare of its employes. He never makes the mistake of trying to "get tough" with the union officer simply because he is a union officer. He is reasonable, objective, firm and fair. This kind of supervisor gives the steward full opportunity to carry out his union responsibilities according to the terms of the agreement, but also insists that the latter live up to his accountability as a paid worker of the company.

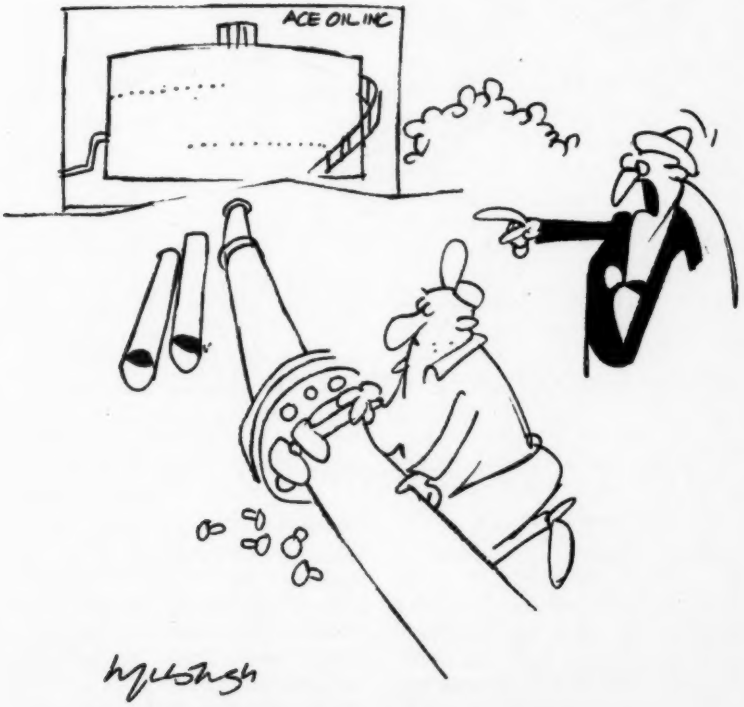
The supervisor who lives up to his job of leadership usually wins the respect of the steward and is able to establish a basis for a positive relationship with Labor. The chances are he has less grievance trouble than does the fellow who tries to placate a union steward in order to head off headaches.

In this case the company was fortunate. Supervisor Sheriff knew the agreement and understood the exact intent of the superseniority clause. He realized that it was in no way designed as a carte blanche for a shop steward to usurp other men's extra pay assignments. Had he decided otherwise he would have established a precedent that might have been very difficult for his company

to overcome. In effect, he would have put the company's endorsement on the shop steward's faulty and self-serving interpretation of the seniority and overtime provisions of the contract.

In all likelihood Supervisor Sheriff's firmness gave Soder a better understanding of his duties as a steward. If Soder didn't get the message it is doubtful that his constituents continued him long in office.

This case is based on one described in the Labor Relations Reporter. It has been altered slightly to illustrate certain principles of supervision. All names are fictitious.



"That's a billboard, stupid . . . The real tank's that way . . ."

Wives Can Make "Top Spot" a "Hot Spot" for Supervisor-Husbands . . . or vice versa

Never Underestimate the Power of a Wife

by Virginia Greer

Eager beaver, super-sonic genius inventors have come up with about everything under the sun to date, except a device concocted for the sole purpose of measuring that by-product of magnetism, moonlight and wedding bells—namely, *wifepower.* It is my opinion that those inventors should give top priority to gauging this hitherto immeasurable power, with its bewildering potential.

Just how powerful and important is a wife in the life of

a foreman or supervisor? One foreman climbs the managerial ladder t o r t u o u s l y, finally perched precariously at the top, at odds with himself, his workers and his wife. Another man arrives at the top comfortably, despite the hard work, confident, relaxed, at peak efficiency with himself, his workers and his wife.

A vital key in both instances, not only in arriving at, but in maintaining that top spot, is that misleading little word—wife. A wife is so important in the life of a foreman or supervisor that she can literally keep that "top spot" from becoming a "hot spot."

Any supervisor who strides into his day each morning, confident, alert, easily accessible to his workers, without laboring under a load of extra superimposed h o u s e h o l d burdens brought from home, is in consequence not only capable of increased efficiency from within himself, but a producer of results from his workers.

Such an executive, fresh and unencumbered from home, can be a quiet dynamo of contagion. Smooth, stepped-up, working productivity can achieve amazing results in the leadership of such a supervisor. The importance of wifepower is not to be sneezed at nor underestimated as it applies to her effect on her husband and his subsequent light and shadow casting on others.

The same graceful hand (lily-white or dishpan as the case may be) that rocks the cradle, can shake up the business world. It can also, on occasion, rock her husband's boat.

Thomas Jefferson advised avoiding entangling alliances. Among those entanglements are a wife forever voicing her husband's shortcomings, unaware of his long-comings, his efforts. A wife whose utter disregard for money, its worth, and his tremendous responsibility in earning it, keeps her husband's mind so cluttered with concern that he isn't able to project his efficiency. His efficiency gets to be more peaked than peak.

A friend of mine whose husband is a superintendent told me recently: "I've just been informed that I don't qualify as the wife of a superintendent."

"By whom," I asked.

"By my husband. He told me he's not receiving enough appreciation at home."

There's more truth than levity in that statement. Appreciation is the grit-free oil that smooths and runs the roughest operations into suc-

cess. The world is crying for appreciation, from the lowest paid worker up through the ranks to the highest and rankest supervisor, foreman or manager. Even the wife of a supervisor likes appreciation. But *somebody* has to start the appreciation ball rolling. It's a smart wife of a supervisor, foreman or manager who will take the initiative to do it herself.

If a wife of any of these managerial positions could quietly hold her life up for inspection she would be stunned at the power she held in her hands. The kind of power that can reach out with an incredible flow and tangibly touch countless workers under her husband's jurisdiction and guidance. Her appreciation, care and concern for her husband, of primary, not incidental, importance in her household can transform itself in a stepped-up power potential in her husband and through him to his workers.

The ideal wife is a pacesetter for her executive husband. The tempo she sets at home accomplishes a manifold purpose. A calm atmosphere, understanding of his problems, the knowledge that he can relax, talk, suppose and dispose of his working problems, make for easier conditions for him at work.

A wise wife keeps a weather eye out for trouble brewing on her husband's horizon. When little signals like angry grunts, or ignoring of the children, rear their heads, the loving wife will merely alert the children to "battern down the hatches, Daddy has a lot on his mind, so we won't disturb him." A little quiet will do wonders for a managerial husband. One of the most important single acts of a foreman or supervisor's wife is that of turning away from the kitchen sink and drainboard, and in a wink of an eye, becoming a *sounding board*. Her husband is to make the sounds and she is to be the board, not the *bored*.

The mere act of formulating his problems aloud oftentimes enables a supervisor to reach solutions and determine answers. Talking to oneself might do the trick. But it isn't nearly as effective to the ego and self-esteem of an executive as talking problems over with his wife. Even when he is doing all the talking there's an equality of participation. He talks. She listens. More dynamic results come from just such a simple exchange of rapport than are dreamed of in heaven and earth. She doesn't

have to be a brain to be important. If she listens intelligently, her importance defies measure. Whether she knows the difference between a cam shaft and a mine shaft—sooner or later she'll have some glimmer of the problems her husband is dealing with, and be able to respond with sensible, helpful questions.

As a sounding board, a wife can actually lessen the load her husband carries, the load that sometimes staggers him.

Can a manager or foreman's wife put others at ease? Can she converse easily, with no fluster, no condescension with subordinates of her husband, no kow-towing to his superiors? The right answers here immediately increase or decrease the importance of a wife. The fine art of discreet listening, and the finer art of discreet speaking.

A helpful husband-wife relationship will result in her knowledge of internal works and heavings. A wise wife will certainly not tell her husband how to run his business (although he may occasionally tell her how to run hers) unless he invites her opinion. But highly important is the way in which she acts as a reservoir, keeping her knowledge intact, not letting little spillways seep out information that is private, confidential. A man wants his wife picture-pretty across the breakfast table, but he wants her likewise discreet enough not to divulge his revelations. It's a fortunate executive who gets both in the same wife.

To help him cope with problems, surmount and triumph, a wife can give her husband two major items: Understanding and patience. Understanding, even when she doesn't fully understand and comprehend the complexities of his position. Understanding in the sense that she is undergirding, backing him up in his efforts. Patience, when her executive husband's work demands more of him than she thinks it ought to.

And there are times when the first two initials of those words, understanding and patience, add up to what she has to give her husband—UP. Up to the demands of his work. And she has to do it with a joy in knowing that he is a top-notch man or he wouldn't be a foreman or supervisor. After all, he's her man, and who wouldn't be proud to be married to a top-flight success!

There are endless facets to the importance and power of a wife in her husband's success. Personal appearance, attractive

homemaking, entertaining, good front to the world. But basically her importance lies in her ability to get along well with him. For that ability influences his getting along well with his departmental workers. And therein lies one of the keys of his success. Good personal relationships.

Managerial positions don't need more bachelors. So genius inventors may be wise to avoid a device to measure this incredible power — wifepower. Can you imagine the rush of—a few?—executives to purchase a "Wifepower Gauge"? Especially if it had a "shut-off valve." Wifepower, mechanically gauged or not, is fact. Not fiction.

Coming Next Month

A review of

NMA's

37th National Convention

in speeches,

pictures,

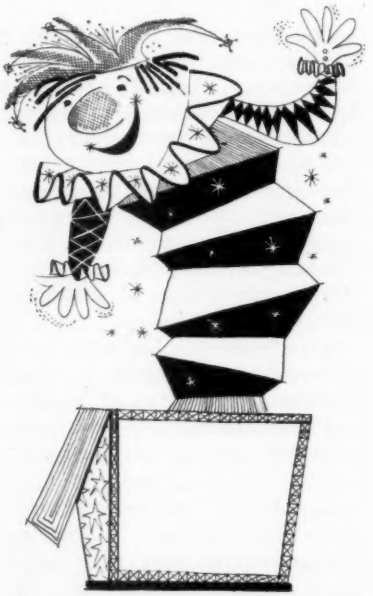
reports.

Don't miss

the

December issue

of MANAGE.



"Men of age object too much, consult too long, adventure too little, repent too soon, and seldom drive business home to the full period, but content themselves with a mediocrity of success." BACON

"I'm 50 and I'm Scared"

by William Levy
NMA Manager of Education

Shakespeare's "all the world's a stage . . . " graphically illustrates the changes that take place in the drama of living. Modern best sellers state "life begins at 40 or 50." There are only two absolutes in our world—the Deity and the fact that we grow old and we must ultimately die. In our youth we impetuously decry the stereotyped fossilism and conservatism of the old fogies of 50. And then one day, as it must be, we face the stark reality that we are 50. A cold chill hits us and we're scared. Why?

For one thing, we are aware now, for the first time, that whereas we have had many rich and wonderful experiences, there is a great deal less time ahead of us than there was back of us. Then, to use an expression of the modern generation, we begin to "clutch" or choke up. We try to build a protective wall around our personal values and therein lies the tragedy. I'll illustrate by a personal example.

In the spring of the year I received an invitation to attend the 25th reunion of my Civil Engineering class at Ohio State University. I thought it over—became interested and then excited. There were 24 men and one girl in my class and I hadn't seen any of them for over 20 years. What had happened to them? What were they like? I decided to find out and made plans to attend the reunion.

Before telling you what happened, it is necessary to digress a bit and describe a few recent changes that had taken place in my own pattern of living. Since the untimely death of my

wife a few years previously, my daughter Sandy, a student at Ohio State, had expressed alarm at my dress and mannerisms. With the typical brashness of youth, she stated, "Pop, you are not only a square—you're a cube—that's a square in third dimension. You are dying on the vine. Why don't you live, man?" Most of my life I wore conservative clothing, acted with dignity and decor and was strictly an egghead. Now, the revolution. Sandy assumed responsibility for buying all my clothing. And was she way out! Silk suits, Perry Como sweaters and vests, bright ties, sport jackets. If it was wild, I got it. Then to the Astaire dance studio where I learned to rhumba, tango, chacha, jitterbug, etc. Life became a hedonistic scramble, strange but exciting, and best described as pleasant aggravation.

The Reunion and the Shock

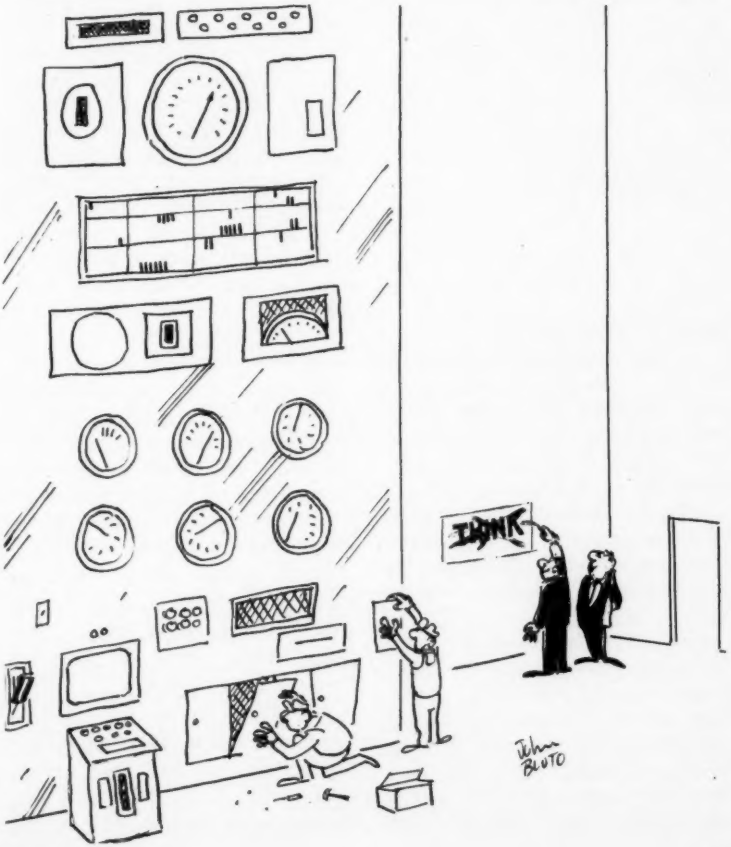
On a warm, late spring morning, I boarded the train for Columbus. A cab sped me to the registration center, then a bus tour of the campus and lunch where at long last I met my classmates and visited with them. Suddenly I wished that I had stayed home. Not that they were fat, thin, bald or wrinkled. It was the perspective. I thought of the prayer of the old Scotchman who said, *"Dear God, keep me alive while I'm still living!"* Conversation centered around annuities, retirement, security, play it safe, avoid risks, etc. Waiting and vegetating — tired of living, 'fraid of dying.

The afternoon was spent watching the students perform in "Guys and Dolls" at Mershon Auditorium. Then to the final big "blast" at the Deshler-Hilton Hotel. In cabaret fashion we watched a parody built on campus events of the late 20's and early 30's—the cow elected campus queen, freshmen thrown into Mirror Lake for using the long walk, the speakeasy and crazy hats and dresses. The orchestra played dance music and I saw that the lone girl in my class was unescorted. Here was a chance to show off my newly acquired skills to the tune of a rhythmic rhumba. Acting the part of the gallant, I approached Jane and said, "Shall we dance?" Her answer, "My feet hurt." What a blast to my poor deflated ego.

Some people die at 30 but they don't get around to burying them until they are 80. A rut may well be described as a grave with the edges turned out. If you are over 50, do you

still have goals, vision and faith in yourself? Life without purpose is like a body without a soul. I once met a man over 80 who when I asked him how he was getting along replied, "Shucks, four more years and I'll have my new house paid for."

Tonight, as you lie in bed, before you close your eyes, ask yourself this question, *"If I didn't know how old I was, how old would I be?"*



NEWS at a Glance

Paper "Space Suits"

Instead of a bath on Saturday nights, astronauts on long space journeys may well break out a new suit of clothes once a week. And these "space suits" will probably be made of paper.

This conclusion was reported by Lockheed Missiles and Space Division scientist Rollin Gillespie at LMSD research laboratories.

Gillespie, who has been studying interplanetary flight problems for several years, said most of the remaining problems for space flight involve actually building the hardware and protecting the crew. His area of work involves developing and proposing space missions, among them the requirements for manned, nonlanding round trip flights to Mars and Venus.

The space systems specialist said paper clothing seems the most practical solution to a number of important problems. Best length of time for a round trip to Mars using rocket power plants currently in planning stages, he said, is around 300 days, just under a year. Everything required for human life including oxygen, food, water, sewage disposal equipment, bathing facilities and recreation material will have to be carried along in a comparatively small space.

The Fifth Wheel

In many states the fifth wheel on a police car means a sound legal argument against a motorist who has the hair-raising experience of being stopped on the highway and told "You're exceeding the speed limit."

State police in at least 15 states are using the accuracy of the Tracktest Equipment Company's fifth wheel to calibrate their speedometers.

All of the major auto manufacturers, many automotive research groups and the Army, Navy and Air Force also are finding uses for the fifth wheel

Trackmeter

or "trackmeters" as the company refers to them.

To insure extreme accuracy, Allegheny Ludlum Steel Corporation's Type 302 stainless steel is used for the wheel's axle shafts, clamp screws and other vital parts.

The trackmeter is composed of a 26 inch heavy duty bicycle wheel equipped with intricate equipment to gauge each turn of the wheel. The wheel usually is attached to the back of the vehicle and has recording wires connected to the inside.

Establish Film Library

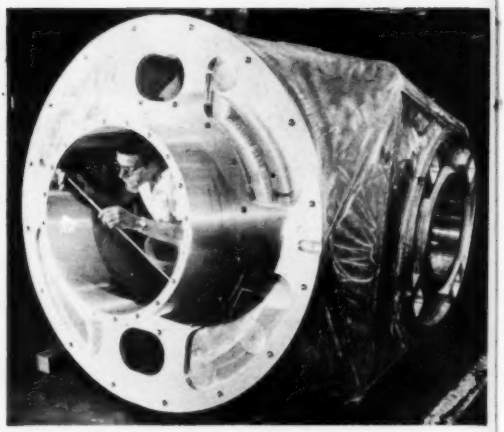
A unique Industrial Education Film Library is being established at Princeton, N. J. It offers industry and government original audio-visual aids for reducing costs, increasing productivity, and improving quality or performance.

The Library's films provide management with a systematic method for keeping abreast of the latest developments and techniques for more efficient and economical operations. The films, which are produced under the personal direction of recognized authorities in their fields, will be helpful to busy executives, managers, supervisors, engineers, and other top personnel.

Training directors now will have access, for the first time, to a collection of specifically designed motion pictures which can be used in training and indoctrination programs. Prints of the films are for rent and sale.

Films now in the Library, or planned for production, include: "The Concept and Principles of Functional Drafting," "The Principles and Application of Work Sampling," "Locating and Developing Creativity in the Organization," "Inventory Control — Key to Profitable Operations," "Planning More Profitable Plant and Office Layouts," "Cutting 'Must' Reading Time in Half," and "How to Improve Writing Skill."

For further information on



***MACHINED SURFACES** of this missile tracking system part for the U. S. Army's Nike-Zeus program call for extremely close tolerance work at Boeing Airplane Company's Wichita, Kan., Division. The 4,200 pound, aluminum traverse housing weldment, one of a series of large prototype parts requiring machining and heat treating by Boeing under a subcontract from Continental Can Company, required machined surfaces at opposite ends to a tolerance of .002 of an inch. Other surfaces were machined down to within .0002.*

this subject write: Industrial Education Film Library, 3 Palmer Square, Princeton, N. J.

Boon to Travelers

Imagine stepping off an airplane, walking through the concourse to the lobby and finding your luggage waiting for you.

Sounds like a travelers' dream, but such is a reality at the spanking new United Air Lines terminal at New York's Idlewild International Airport.

When a giant DC8 lands at United's Idlewild Terminal, 11 fiberglass containers, shaped to fit compartments in the underside of the fuselage, are lowered by electric hoists.

The pre-load containers, part of a jet-age baggage handling system developed by United, are then moved swiftly to a concourse baggage room, where individual bags then are placed on a conveyer system which speeds them toward the lobby claiming area.

Key to maintaining a constant speed in the system are 12 power-operated curved belt units which give the conveyor operation a snake-like appearance as it winds through the terminal basement. Goodyear Tire & Rubber Company engineers developed special belting to travel around curves of varying radii at speeds up to 300 feet a minute.

As the baggage enters the claiming section, a moving diverter takes over and gently distributes suitcases at two-foot intervals along a tilted stainless steel rack.

Color—New Management Tool

A rainbow which points to plant safety, employe morale and increased efficiency is what the imaginative use of color has proved to be for the Amana Refrigeration, Inc. plant in Amana, Iowa.

A leading industrial management publication, FACTORY, has cited Amana for substituting an over-all color plan for its previous over-all cast of grey, brightening morale, improving efficiency, and cutting down on accidents throughout Amana's plant.

"Color—far from serving decorative purposes only—is an actual tool of management," the publication reported, stating the scheme "paid off in multiple benefits at Amana."

Warning employes and visitors of potential hazards is a special shade of yellow, which appears also on all moving machinery parts. A slightly different shade of yellow alerts visitors and workers to safety signs and material-handling trucks, differentiated by the shading from stationary equipment.

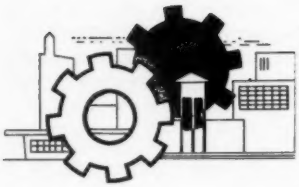
NMA MANAGEMENT CONFERENCES

Nov. 12—University of Buffalo, Buffalo, N. Y. Sponsored by Western New York NMA Council. Contact William J. Lees, Westinghouse Electric, Buffalo.

Nov. 12—Kokomo, Ind. Contact T. E. Engles, Haynes Stellite Co., Kokomo.

Nov. 19—Greeneville, Tenn. Contact Jim Armstead, Formex Company, Greeneville.

Dec. 3—Portsmouth, Ohio, sponsored by Detroit Steel Corporation. Contact Alfred Millard, Detroit Steel, Portsmouth.



OUR *New* COMPETITION

by S. T. Williams

. . . It used to be that "if a man makes a better mousetrap, the world will beat a path to his door" to buy it from him. From the noise of the Madison Avenue Boys of advertising, of radio and of television, paths these days need a lot of "beating" and with it all, if today you make a better mousetrap, the Germans improve upon it; the Japs copy it; the World Bank finances its production; Congress cuts the duty and the low price gives it to the domestic and world market. After that, the unions demand more pay and increased unemployment benefits, and go on a strike. That isn't competition . . . it's murder!

In the past 10 years I have traveled in many countries. Ten years ago many of these countries were but little changed through the years; and if affected by the war, discouraged and tired.

Increasingly has a spirit of universal discontent swept over these countries . . . whether they be in Asia, in Europe, Africa or in South America. And with this has come to their people a spirit of high adventure of determination and of change . . .

Previously this spirit was expressed, where present, in the emigration to the United States; for the United States was the living evidence of all things desired and all things hoped for

This talk was presented by Mr. Williams, president of the Scovill Manufacturing Company, to members of the Kings County Management Club in Brooklyn, N. Y.

. . . The people came, and in an environment of free enterprise, with minimum government interference, made us what we were at the end of World War II. It was during this period we acquired our Yankee ingenuity, our spirit of enterprise and our mass markets.

Today U. S. A. is more and more a "have-not" nation. Each day we approach nearer and nearer to the point of no return . . . Those who govern for us "ride with the pack." Perhaps if enough of us make our feelings known, it will not yet be too late.

. . . The old saying that "competition is the life of trade" is still true. But if *you* are the individual or business on which the competition is focused, the reverse may be true. So our problem as producers is to get and stay on the right side of the competitive situation.

Today that "takes a lot of doing." As far as "business as usual" is concerned, Pandora's box of troubles has been completely kicked open by two world wars; the airplane, radio and the movies; and the attendant destruction of the neat compartments in which various people lived, worked and died. Attendant, and perhaps from these, came communism; racial and geographic unrest; an explosive birth rate and a continuing turmoil both national and international.

Now I do not believe I am going to answer . . . many of the problems that beset us . . . but I do want to examine some of the more important ones . . .

These are the new and enormously powerful forces, crossing all social and geographic boundaries, that have changed our world. They have changed the relationships of peoples and nations; of government policies; of labor and management; of production and marketing. *They have broadened the dimensions of competition . . . and narrowed the capacity of the individual company to meet it.*

What are some of these new dimensions? Perhaps the best way I can describe their effect is in terms of the company I know best, in which I have served for 30 years, and which I now head.

The Scovill Manufacturing Company is a diversified company. Its output ranges from brass and aluminum mill products to a multitude of manufactured items . . .

Founded in 1802, it is a living history of competition . . . and bears the scars to prove it. It spans the whole period of competition as we know it, which really began with the industrial revolution.

When Abel Porter and associates poured the hot brass into the little one-pound molds, squeezed the small cast bar in a steel wringer to make a wider and thinner strip, the idea was to make brass buttons. Buttons had been imported from England. Thus was established the first brass mill in America.

Its competition, once 3000 miles away, was not long in coming home as others got the idea of melting, casting, rolling, and rerolling into wide, thinner, longer strips. . .

The competition was quick to catch up. Metal working know-how, and the cost of man-hours in terms of productivity, set the price-profit relationship.

Nowadays, Scovill pours molten brass by the ton into a continuous casting machine from which exudes a ribbon of metal so wide and thick that a 10-foot length weighs as much as an automobile. A similar machine produces round stock.

This is about as far as you can get in producing the most of the best basic metal at the lowest cost. So what happens after that?

* * *

Competition. A new dimension of competition. A kind of competition which overwhelms the plain facts of lower production costs, by local price tags, that make a mockery of technology and bulk savings. Plumbers have bins full of imported brass mill products: tube, tees, elbows, all perfectly good—and why not?

* * *

As taxpayers, we find ourselves in the peculiar position of setting up our own competition. As a nation, we have provided technology, manpower, and money to create industrial capacity in friendly nations and conquered countries, which has grown to bite the hand that fed them. It is a cynical reflection that the way to win in progress and world markets is to lose a war with the United States.

* * *

Competition, in the new decade, is factored also by labor contracts which seek to share profits—without assuming the burden of losses. This is another new dimension of competition, a kind of internal competition, which fights cost reduction—but proffers no savings as a result of mechanization.

* * *

Competition is now political, industry-wide, world-wide, cut-

ting across all boundaries. For a company like Scovill, it includes not only the normal competition of similar companies in the same market. The new dimensions of competition include also the squeeze between the little local shops, and the growing pressure from the growing combinations of companies which are creating a corporate giantism that stifles competition.

* * *

For even the youngest company, dedicated to development, to growth—meaning the accumulation of capital—these new dimensions of competition are a constant threat.

* * *

For an older company, the new dimensions of competition present additional problems. To grow big means also to grow old; to accumulate old thinking, old habits and patterns, old limits of what can and cannot be done. The greatest foes of progress are those who "know what isn't so, have tried it, and it won't work."

* * *

If we are to survive in this admittedly gloomy picture, we will have to remodel our thinking as well as our machines and factories, where possible, and abandon them where not possible. We will have to recognize that the new dimensions of competition are not simply local, or national, or even international. They are also political. For perhaps our greatest competition comes from our politicians, our bureaucrats and from those we elect in the fond hope they will represent the country's best interests. . . .

Let's see what an economist thinks about our business problems. I turn to Peter F. Drucker, who in the Harvard Business Review asks, "Are we too blind, too smug, or simply unaware that the conditions determining our world position have changed."

He starts off: "American public and business policies reflect some basic assumptions regarding our position in the world economy. With some over-simplification, these assumptions can be summarized in the following four statements:

"1. The domestic market is the most important market for the American economy; performance in it is a full measure of the performance both of American business and of the American economy.

"2. American superiority in productivity and in technological and managerial knowledge

is 'normal.' (Some people might even say 'God-given,' I suspect).

"3. The 'dollar gap' is a permanent fixture of the international economy; foreign countries want as many American goods as they can get—and they want much more from us than we shall ever want from them.

"4. Altogether the world economy needs us more than we need it."

An almost opposite set of assumptions would, I submit, be far closer to the truth. Also it would give us a better foundation for business and public policies and attitudes and a more reliable yardstick by which to measure our true position in the international economy.

Drucker goes on to what he considers a realistic approach to our international business problems. His assumptions are:

1. The foreign (i.e., export and import) market is fast becoming the truly critical market for the American economy.

2. American leadership in productivity and in technological and managerial know-how is not "normal" but "abnormal."

3. Within a few short years—perhaps even less than a decade—the central problem of United States economic policy may well become earning enough foreign exchange to pay for imports, (and to finance production of needed raw material imports in overseas plants.)

4. Altogether, America's position in the world economy is both crucial and precarious.

In support of these four assumptions, he notes that our ability to produce is now dependent on our ability to import a long list of industrial raw materials—materials we either do not produce at all or do not produce in quantities adequate to sustain our present industrial level. He suggests that a full half of the jobs in our economy already depend in one way or another on our capacity to import.

Somehow we must find a means of keeping our products competitive domestically and in foreign markets. We can't do this unless we control and possibly roll back inflationary forces in the United States. Excessive budget deficits, too easy money during boom periods, the wage-price spiral, and the farm price support programs are all elements. So are conditions that hamper productivity.

Other countries establish quotas on imports from the United States, and these should be removed, under threat of establishment of quotas by our-

selves. We should correct many things that are bad, such as "off shore" purchasing under our mutual security program. We should correct the impression that the amount of funds we have available for grants and loans to foreign countries is inexhaustible and we should not be expected to carry more than our fair share of the overall military and economic systems program . . .

. . . Acton Chance—who calls himself "metalworking's private eye" in STEEL Magazine investigates the case of vanishing taxes.

He gives one example of a domestic company bidding on a Navy ship plate contract. They are underbid by a foreign company and the Navy boasts that it has saved $37,000 by taking the low foreign bid. Well, what did the country and what did the rest of us save? The direct taxes lost on this deal were $67,000. The foreign company paid no U. S. income tax and the net loss to the United States was $30,000 . . .

In machine tools there was $31,800,000 lost in 1958 as compared with 1954. Imports were up $7,000,000, and exports were down $24,800,000. Last year it was even more. This, he says, means 3,180 fewer jobs in the United States. The total of these three examples is 66,230 jobs. I assure you that these are but a minute part of the whole picture, but do show the trend.

Comparative wage scales do not tell the whole story. Wages and productivity must be combined. Let no one tell you our workers are consistently outproducing our foreign competitors. It just is not so, and where it is so, it will not be so for long.

In the steel industry, in 1957, the following comparison in wage scales existed:

United States	**$2.91**
Britain	**.827**
West Germany	**.694**
France	**.583**
Italy	**.55**
Japan	**.361**

In the face of increasing costs all along the line is it any wonder that our steel industry is fighting inflation, and endured a long strike in trying to hold the line. They should have had the support and commendation of every thinking citizen; but an economic battle was settled for political reasons.

. . . When the competition you face from abroad has but three to 15 per cent of the labor content in its products as compared with three times those amounts in your equivalent products—when he has no fringes—benefits from tax refunds on products exported—possesses new and

better equipment than you do—has no engineering expense because he copies your products after you have developed them and established a market—where he benefits from long term credit loans and favorable financing through world banks—what possible difference can a few per cent duty increase mean? The chances are that he was already overpriced on his costs and making 40 to 50 per cent profit on operations to begin with. We in the United States are pikers when it comes to making a profit . . . Our profit generally comes from the last 25 per cent of our business—and when we lose that—no more business.

Now what does all of this do to the dollar? Recently I was talking with a French industrialist. He knows all about inflation. It went so far that France recently revalued the franc. It had already been devalued, and is now, I believe, on the way back to a stronger position.

He said "In France we are counting on a devaluation of the dollar in the early sixties. We do not think it can hold up much longer." It was a shock to me when our dollar became worth less than the Canadian dollar. To become worth less in world markets would be a national admission of calamity. It may happen, but I hope not.

It would mean we could buy less and less of needed commodities—and you will remember I have submitted evidence that we are becoming "a have-not nation." We have spent federal money, and keep on spending it as though we believed that the spending need not be paid for. Seventy billion has gone for foreign aid since World War II, and continued foreign aid at the rate of something like four billions a year is an important factor in our gold outflow.

Well—I could go on and on—but what to do. There are short range possibilities, and long range possibilities and there are national possibilities.

Short range, for any single industry, the program seems to be to meet foreign competition in foreign markets with foreign plants. This takes jobs away from the United States. But they are gone or are going anyway, as far as export markets are concerned, from the U. S. A. For that reason we have two plants in England, two in Canada, one being doubled in Brazil—one in the making in Australia, and two underway in Mexico . . .

Let me affirm that these plants are not *planned* for import into the United States. Building a backfire to protect

your property from a conflagration is one thing. To use these plants for importing to the United States would eventually do the opposite. But it may come by necessity.

Short range planning also includes the dispersion of domestic plants to smaller units in favorable areas in the United States. Domestic competition cannot always be met by old industries in obsolete multi-story buildings, with old organizations operating under rigid labor agreements.

It is worthwhile to modernize —to try to improve output—to try to secure improved labor contracts in the old operations. But there are some clocks you can't turn back and they may have to be slowed down or stopped to wait for time to catch up.

Tax revisions downward and decreased government spending is necessary.

But the thing we need most is a realization of our national and local position by those who govern for us. That is a matter of public expression; these expressions must be based on a realization of our domestic and international position. That is why I am talking here tonight; that is why others must talk and continue to talk, and that is why I hope each of you will do likewise.

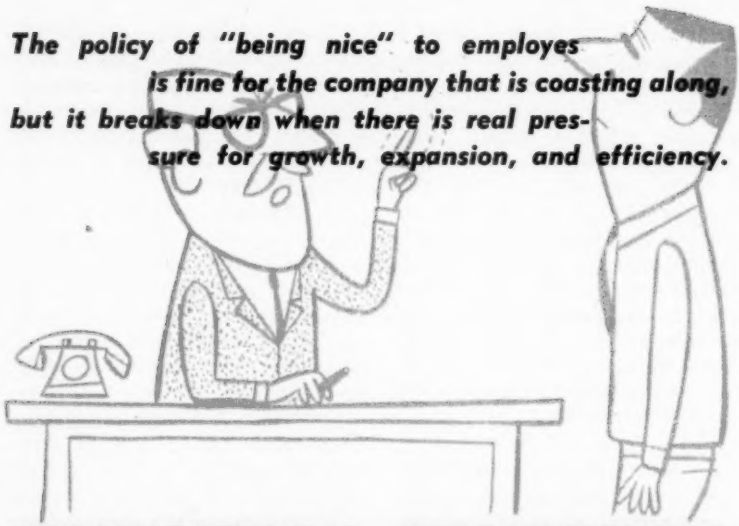
Look at little Finland. Stuck in the side of Russia, bullied and beaten by them, yet asking nothing of others, yet endures—it makes progress and it shames us all. Let us take a lesson from Finland.

Let us try to get some of that same spirit and let us individually and in groups write to our representatives and our candidates that we want less spending, less taxes, less foreign aid except for specific defense, intelligent protection for U. S. industries. Let us recognize that labor has grown up, that unions are here to stay and as a proper part of our economy must take a proper responsibility, a less selfish interest and be subject to equitable laws as are the rest of us.

Let us know what we are voting for and let us make sure that we get it. To do this we must vote. We have seen how tough the Russian philosophy really is. Let's get tough too before it is too late.

If we are indeed rugged individuals, let us resist individually and in our homes the purchase of low-priced foreign merchandise for ourselves and for our businesses. In the long run, good U. S. A. merchandise will be in fact the lowest in price, because the dollar we spend at home remains here to keep on working . . .

The policy of "being nice" to employes is fine for the company that is coasting along, but it breaks down when there is real pressure for growth, expansion, and efficiency.



ORGANIZATIONAL EFFECTIVENESS UNDER STRESS

(Part One)

by Chris Argyris

In 1958 I wrote an article for this magazine (HARVARD BUSINESS REVIEW) raising questions about what makes an organization healthy. The reactions of businessmen were most encouraging. Especially helpful were the many thoughtful questions they raised which shed light on problems that trouble them as well as researchers and social scientists. Below are three representative examples (the Plant 5 referred

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to is the one cited in that article):

- "We agree that employees are becoming increasingly apathetic and noninvolved in the company. True, you suggest this trend may lead our society into trouble. You may be correct. I am not sure. What worries me in the immediate future is the impact of the trend on the business firm. Are apathy and noninvolvement, accompanied by what is usually seen as high morale, necessarily bad for a company? Sometimes as a manager I wish that I had a situation like Plant 5 where people are willing to produce and to hell with having their active interest in the company. Maybe we've made too much of asking the employe to identify with the company."

- "The reason the employes are apathetic and indifferent is that their management does not pressure them enough. Plant 5 reads like a factory of the past. How are they making profits? If I were there, I'd put the pressure on Plant 5, and I bet I'd get much more out of them."

- "Is it necessary that employes get their self-expression within the plant? Many employes prefer to obtain their personality expression outside the company. Still others have no, or very little, desire to be creative. I question if this makes a company unhealthy."

There are two basic themes in these comments from businessmen:

1. Is a company full of apathetic, indifferent, hourly employes necessarily unhealthy? Why is it not an ideal situation to have employes who are willing to be led and who are not too involved in the company? Let *management* have the involvement, creativity, and new ideas.

2. Why does not the management of Plant 5 apply more pressure for production? Could it not get much more out of these people if it showed more leadership and push and tightened up on costs?

A moment's reflection leads to the conclusion, I believe, that these themes represent important but conflicting managerial philosophies. Those who use the latter philosophy—let us call it, for convenience, the "pressure" approach—strive to achieve a healthy profit picture through the application of continual pressure on the employe to reduce costs and to increase production. They accept the resulting employe dissatisfaction and hostility as inevitable and counter with a willingness to defend their approach as the lesser of two evils. They disagree flatly with those who use

the first philosophy—what might be labeled the "be nice" approach. Here the executive prefers to apply less pressure and expects in return that the employes will be "good" people who "don't get into management's hair and will permit managers to run the plant as they desire."

What are the advantages and disadvantages of each philosophy? Research has shown that the "pressure" philosophy leads to fairly certain losses and few potential gains, and I do not need to say more about these results here. We have not, however, known much about the soundness of the "be nice" approach. In this article I shall present the findings of a new research study showing that, while the latter philosophy leads to few personnel or production problems in an organization that is "coasting along," it may not be well suited to the management that strives for expansion and increased efficiency.

The "be nice" approach is based on the assumption that the best way to motivate employes is to pay them high wages, give them excellent benefits, and provide them with a high sense of job security and excellent working conditions. In return, the employes are asked to be "good corporate citizens," which in reality usually means that they should strive to achieve the goals set by management and that they need not become too involved in the everyday responsibilities of running the company.

Plant 5, the organization I discussed in my previous HBR article, is administered under such a philosophy. In this multi-story manufacturing concern employing nearly 500 people, including both highly skilled and nonskilled workers, production is high; absenteeism, turnover, grievance rates are low; and the employes and management speak glowingly of each other and of the plant. No wonder some have asked: What more can management want?

Perhaps this is a sound situation. But in order really to test the philosophy, it must be studied under stress. In such circumstances the basic weaknesses, if any, will come to the surface and can then be more readily examined. Unfortunately, Plant 5 did not come under stress while our research group was there (although a cost-reduction program did get in high gear later).

Ideal Test

Then, with the help of a cooperative and farsighted top management, the opportunity

became available to study an organization which was very much like Plant 5, but which *was* under pressure. Here are some details:

Plant 6 is also a multi-story manufacturing organization employing nearly 500 people. It is in the same corporation as Plant 5, and manufactures products requiring very little skill and products demanding very highly skilled craftsmen. Moreover, it has basically the same corporate controls, and the same type of leadership.

About a year ago the management began a new push to cut costs and in general tighten up the plant. Pressure was applied to cut production waste, errors, and "down time," and to increase the quality. New control procedures were introduced and the local leadership was continually pressured to make the plant more efficient.

Plant 6, therefore, seems an ideal place to study the impact of increased pressure on a company administered by a philosophy of "treat them good and require minimal involvement."

Social System

Particularly significant is the social system in an organization like Plant 6. On this score Plant 6 is so similar to Plant 5 that it can be described in identical terms:

1. The major needs of both the high-skill and low-skill employes are high wages, job security, noninvolvement in the "financial health" of the company, control over their own immediate work world, and to be left alone by management. (The word "needs" is used here to denote the desires that employes seem to want to fulfill while at work. These needs are not assumed to be as basic as those usually listed by psychologists as characteristic of most human beings.)

2. A "psychological work contract" is "signed" by the employes in which they promise to produce a fair day's work in return for the fulfillment of these needs and having a fair "kitty."

Here is how the "kitty" works. Some jobs are timed so that one can make quite a lot of money in one day if he produces to the utmost of his assumed capabilities. However, as is the case in many plants, the employes restrict their reported production. They do this by simply holding back "tickets" which they must turn in if they are to get paid for the work performed. The tickets state how much the man produced on a particular item, the piece rate, the order number, and so on. Thus if any employe

produces more than he feels (or, in many cases, more than his foreman feels) is wise to turn in, he "banks" the tickets in his kitty and holds them until a day when he is assigned a tough job or when he is not feeling well or when his machine breaks down.

The great majority of the employees (97%) report that the kitty is very important to them. It provides them with a measure of control over their wage fluctuations and helps to guarantee them a steady take-home pay.

3. An effective foreman in a firm like Plant 5 or Plant 6 is one who:

- *Keeps everyone busy with work.*
- *Gives out the jobs in a fair manner so that all employes have an equal share of the tough and the easy jobs.*
- *Makes certain everyone goes home at the end of the week with a fair average take-home pay.*
- *Leaves the employes alone.*

4. The resulting "passive" foreman leadership makes management dissatisfied. Executives wish that the foremen would manifest more active, striving, pressuring characteristics toward the employes. The foremen in turn find it difficult to convince management that their passive leadership is effective for the situation in which they work. Consequently, they tend to withdraw or to become increasingly passive in their relationship with top management.

5. Management reacts to passive foreman leadership by applying more pressure on the men to make them, as one top executive said, "more alive, go-getting, and hard-hitting." Also, partially as a result of the dissatisfaction with the foremen, the top executives constantly make "visits" throughout the plant talking directly with the employes. Although these visits act to increase the employes' satisfaction, they also tend to increase the foremen's dissatisfaction. Many foremen feel they are pressured, undercut decision carriers, not decision makers, and thus have a low status in the plant.

All of the foregoing factors become inter-related in a social system that, once in balance, strives to maintain itself and not change.

Characteristic Attitudes

As long as no important change is forced on the system, the employes in a situation like that described are likely

to continue to be alienated, apathetic, and noninvolved in the company. They will probably produce well, like their company and management, hardly ever be absent or leave, express few grievances, be highly loyal, and show little interest in unionization. The foremen, on the other hand, will continue to be frustrated, to feel themselves "second-rate" decision carriers who are weakened by top management's "visits" and who have little influence over the employes. Top management will continue to view the foremen as "weak links" and the employes as "strong links" in the firm. These attitudes will tend to reward the employes and maintain their high state of satisfaction, but perpetuate the frustration and dissatisfaction of the foremen.

A natural question asked by managers at this point is what might be done to improve the situation in organizations like Plants 5 and 6 without changing management's basic philosophy. For example, why not develop better foremen with a rigorous training course? If the workers are happy and doing good work, why not leave management's relations with them exactly as they are, and worry only about the supervisors? In this way, it might be argued, the organization could be strengthened at its weak point and thus prepared for stress and strain when it arises.

Foremen's Plight

It is said that "foremen can be changed with a good training course and more personal contact from middle and top management." It is also said that "all they need is to be helped to feel that they really are a part of management." The first statement, in my opinion, assumes that foremen are passive because they lack something and therefore are incompetent. The latter assumes that foremen do not feel they belong with top management. It is not difficult for management, holding such assumptions, to believe that training and personal contact will tend to alleviate the situation.

However, the foremen see themselves and their situation differently. They are passive leaders because this is the leadership behavior that will influence the employes to produce well, to be loyal, and to show a low absentee, turnover, and grievance rate. They feel they belong, but their sense of belongingness is not limited to management. They feel they belong to the whole organization. *It is their sense of belongingness to, and feeling*

of responsibility for, the company as a whole that leads them to behave the way they do.

Thus, no matter how good a training program is offered, these foremen, if they are to act responsibly, will return to their work situation and continue their passive leadership and adherence to the psychological contract. In fact, as the foremen in Plant 5 point out, sending them to a training course would not only miss the causes of their problem, but it would place them in an extremely painful situation. In their eyes, only a management that wants to be punitive will tend to see leadership training as a measure that really makes sense.

Nor, continue the foremen, will personal contact help the situation, especially if management enters into this activity with the assumption that the supervisors are at fault. The assumption will only tend to influence management to act in such a way as to prove to the foremen that they *are* viewed as being "second-rate." Once the foremen sense this attitude, they will tend to feel even more hurt and misunderstood. Realizing the difficulty of communicating their views to the top and fearing the consequences of questioning management's diagnosis, they will tend to suppress their resentment and will act overtly as if they agree with top management.

Management Reaction

On the other hand, because the foremen do not communicate how they really feel, top management will interpret their behavior to mean that they accept its view. Once making this interpretation, executives will tend to become extremely irritated when they see the foremen continuing their old behavior. Thus we have a situation where increased personal contact may tend to increase misunderstanding and irritation. Our research shows that this is precisely what is happening in Plant 6. For example:

A senior executive became tired because "those damn foremen kept agreeing with me that they ought to change but never do anything about it." He decided to hold a meeting where all the foremen were brought into the office and told "to straighten up and fly right or else the company will have to take action." As one foreman said after the meeting, "I felt like telling that s.o.b. where the hell to get off, but I figured I'd better watch out. If I was sure they wouldn't fire me, I'd quit tomorrow as a foreman and go back to the bench."

Of course, one of the troubles with trying to change the foremen is that they cannot be singled out and dealt with as an isolated group. Employees and foremen are intimately interrelated as parts of a social system, and we know from many research studies that it is impossible to change a crucial part of a system without influencing many of the other parts. Management must therefore be willing to deal with the employees differently if it wants to do something about the foremen.

Let us turn now to the hourly workers in organizations like Plants 5 and 6. In view of the fact that they have been productive in the past, would management do well to keep them that way by maintaining its "be nice" philosophy and try to live with its foremen troubles?

I predict that management will have few if any difficulties with the employees or their production as long as it is willing to accept their alienation, noninvolment, and apathy; as long as it is willing to provide high wages and benefits; as long as it leaves the workers alone; *and* as long as it contemplates no important changes in the system. A philosophy that features the development of "happy" workers who are not too involved in the firm will tend to work *only as long as the firm does not desire to grow and develop and/or as long as the company is in a very sound financial position with little prospect of competition.*

How many firms are in this position? And how long can any firm exist without the prospect of competition? Can an organization decide to stop its growth without seriously injuring its health? I think the answer, for many companies, is as clear as it is for the top corporate management of Plants 5 and 6. Because of a desire to grow and because of heightened competition, these managements are continually revising upward their level of aspiration for productivity and cost reduction. Costs have to be cut and controlled while production has to increase. Hence, new programs of cost reduction and control have been launched. The effort is not motivated by a deep dissatisfaction with plant managers. Rather it is a natural consequence of top executives' basic philosophy that every plant in the company must continue to grow and develop or it will die.

Next month the author will turn to the data obtained in Plant 6 concerning the impact of stress on a company with a "be nice" philosophy.

MANAGEMENT BOOKSHELF

Last March NMA inaugurated a special book purchase plan. Through the cooperation of McGraw-Hill Publishing Company, NMA has offered selective volumes on management subjects at a special discount of 20 per cent. This service is available only to NMA members.

From time to time all books that have been offered in the past are reviewed for the benefit of those readers who are just now becoming aware of the plan. This month MANAGE briefly reviews all of the books that have been offered thus far.

Management and Organization

by Louis A. Allen

A well-written book offering a blend of sound principles and practical ideas. It is divided into three main parts. Part one is a brief but effective treatment of the profession of management and the nature of the management function. Part two spells out what is meant by organizing and what is involved in performing that function. Part three deals with the dynamics of organization, discusses change and the dynamics of change. *Member price, $5.60.*

Managing by Communication

by Willard B. Merrihue

This book identifies communication not as an end in itself but as an effective means for the solution of managerial problems and the attainment of objectives. This is a valuable book to those at almost any organizational level. A major contribution of this volume is the help it gives the manager in viewing the communicating process as an integral part of the management function. *Member price, $5.60.*

What Every Supervisor Should Know

by Lester R. Bittel

Here is a book on supervisory management with an effective and refreshingly simple format. It consists entirely of questions and answers. In fact, over 700 questions and answers are listed dealing with the supervisory management function. It asks sample questions such as "When can't you make a discharge stick?" or "How do you get down to the real business of training an employe to do a job the way you want him to?" Each question provokes thought as well as offering specific answers. The questions are divided into five main categories: "About People at Work;" "Supervising People—The Fundamentals;" "Supervising People—Special Techniques;" "Managing Your Job;" and "Helping Yourself To Succeed." *Member price, $6.35*

Manager Selection, Education and Training

by Willard E. Bennett

In this book a strong attempt is made to organize a general theory of management development to serve as a sound basis for policy and planning. The author sets forth some clear objectives; analyzes factors necessary for proper managerial development; postulates a general theory of selection, education and training; spells out a prototype development plan; details consideration of administration and execution of development plans; shows the application of the more important techniques, and the development process in clear perspective. *Member price, $4.80*

Management for Engineers

by Roger C. Heimer

This book can be classified as a good introductory test for the engineer with growing interest in management. It is concerned specifically with the engineer and business administration. The book covers four major areas: production costs and cost control; finance and controllership functions; concepts of organization; and contributions of the engineer through a decision-making process. *Member price, $5.56.*

Principles of Management

by Harold Koontz and Cyril O'Donnell

One of the outstanding books on principles and concepts of management, it attempts to give the manager some guides as to what to do based on the best methods available. The authors

do not attempt to present an exact science of the management process since one simply does not exist, but in their judgment management is likely always to be largely an art with some aspects reducible to analysis using fairly scientific methods. *Member price, $5.60.*

The Technique of Delegating

by Donald C. Laird and Eleanor C. Laird

This book is devoted exclusively to the delegating process. Chapter headings seem to be effective responses to managers' questions such as, "Where Is Delegating Needed?", "Getting Ready to Delegate," "When to Delegate," "Eight Guides for Planning," "What to Delegate to Simplify an Executive Job," and "What Not to Delegate." It is a highly practical book written in a language meaningful to the manager and incorporates pertinent research that has been done in this problem area. *Member price, $3.20.*

The Uncommon Man

by Crawford H. Greenewalt

This is the third in a series of McKenzie Foundation lectures held during the spring of 1958 at the Graduate School of Business at Columbia University. It concerns the problems of the individ-

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ual in the organization. Greenewalt draws some important distinctions between concepts of conformity that should prove enlightening. He has some interesting remarks about the problem of individual performance and treats other topics such as incentives, rewards and motivation. *Member price, $3.20.*

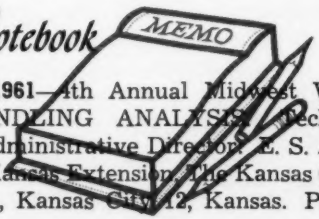
The Human Side of Enterprise
by Douglas McGregor

McGregor develops an interesting approach to the classical theory of management by describing alternate theories, which he labels X and Y. The traditional view of direction and control versus the integration of individual and organizational goals. The author effectively points out some important assumptions we make about human behavior when we consider the concept of authority. This book is divided into three major areas. Part one is devoted to the assumptions of management; part two is a general exposition of what McGregor calls theory "Y"; and part three examines major topic areas important to the development of managerial talents. *Member price, $3.96.*

Probability and Statistics for Business Decisions
by Robert Schlaifer

Acclaimed as one of the most important contributions in the field of decision making under conditions of uncertainty, this book incorporates many new developments in statistical theory and does a satisfactory job of focusing on business needs in particular. Although this volume is good for management analysts or scientists such as operations researchers and anyone involved in mathematical decision-making, it is also of interest to those managers who need to have understanding of the logical foundations for applying the probability analysis to business decisions. *Member price, $9.20*

Conference Notebook



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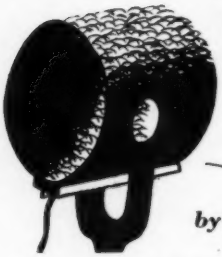


SPOTLIGHT ON WASHINGTON

by Michael S. Roberts

RED ATTACK UNDER COMIC MASK

The comic-opera antics of the Russians and their stooges at the United Nations and in Africa in recent weeks have a deadly serious purpose—to cover up political and economic power plays by the Communists in half a dozen countries around the world. Unfortunately, the Reds are getting the desired affect.

This is the depressing word from several of our top government foreign affairs advisors. These officials, in private conversations, are deeply concerned over the now-proven ability of these Communist clowns to cloak their sinister ambitions for world domination.

In the immediate future, the Reds have their sights set on some valuable prizes—the vast material and manpower riches of Africa, the strategically-vital Cuba, and other Latin American countries. The leaders and their dupes are a fascinating polyglot of power-mad politicians.

Khrushchev is a smart, in some ways beguiling, hard-headed ruler with a tremendous war machine in his hip pocket. Castro, now our closest enemy, is a mass hypnotist of the Hitler-Mussolini stripe under the firm control of some of the toughest, cleverest, most intent world political gangsters of our time.

The major new African nations, with the exception of Nigeria, are being run by a mixture of Red-oriented hot-heads, barely educated but idealistic nationalists, and ineffective strongmen.

Each economic or political success brings the Red offensive closer to our borders.

A WARY EYE ON MEXICO

With Cuba safely brought into line, for the moment anyway, the Reds have opened a new campaign to bring Mexico, even a closer neighbor, into the Red orbit. So far, they've scored no substantial victories, although they have managed to be highly successful in the first phase. This is beginning to destroy the good will between the U. S. and its Southernmost neighbor, and in laying the base for fear by U. S. businessmen and tourists that there is a danger to visitors or property there.

Our intelligence sources say that there has been little or no increase in card-carrying Communists, nor in Red spies in Mexico in recent years. But those that are there have come out into the open, become more vocal, and have stirred up some minor student riots and demonstrations. There's a serious purpose in these harassing nuisance activities.

The Soviets some months ago offered the Mexicans an estimated $200 million in credits, at a fantastically low interest rate, to buy industrial equipment, plants, medical supplies, or about anything they wanted. The Mexican government, under semi-socialist Adolfo Lopez Mateos, said it would receive the offer, but not accept it for the time being. (U. S. technical aid to Mexico runs about a half-million dollars a year.)

Officials of our State Department don't believe the Mexican government will accept the Red aid, which always involves a massive influx of Soviet technicians, "advisors," and agents. But if the Reds can successfully frighten away American tourists, who spend upwards of $900 million there a

year, and American capital, which has a rapidly rising investment of more than $100 million there, then the Mexican economy would be forced to turn to these credits to make up the deficit.

In spite of the unsettled conditions which the Communists have been able to produce in the past couple of years, there is little reason for a withdrawal of either American capital or tourists from Mexico. There is no revolutionary movement, such as Castro's, now operating or believed likely to get a foothold there. Seizures of property owned by U. S. citizens has been nil since the oil company seizures of 1938, although there have been a few condemnations and purchases which have generally satisfied U. S. interests.

The Reds are trying to play on the slight hangover in relations between the U. S. and Mexico that remains from the Mexican war. But the Mexican governments have been solidly in the Western camp for 20 years.

This then is an emerging battleground between the free and Communist world, which added to the African, Asian, and other Latin American onslaughts becomes part of a frightening picture.

SECURITY CHECK TIGHTENING DUE

If American citizens generally are not as aware of the growing Russian menace as they should be, the U. S. government is showing signs of trying to tighten its defenses.

In addition to a fresh military defense buildup certain to emerge in the post-election period, federal officials are also going to try to tighten up defense against internal subversion.

In the wake of warnings from FBI Chief J. Edgar Hoover that the Reds are increasing their spying and other penetrations in this country, a tighter security system is in the works.

One phase of this—a tightening of industrial security measures—will have a direct affect on many foremen and supervisors.

Under new industrial security procedures, recently put into effect to meet orders of the U. S. Supreme Court, the government will have to take more pains to remove suspected or proven security risks from sensitive jobs in industry. This, coupled with expected increased Communist activity in the industrial area, will slowly but surely mean more thorough and more frequent visits by government agents to defense plants and slower clearance for new workers in some cases.

ECONOMIC BATTLEGROUND WIDENS

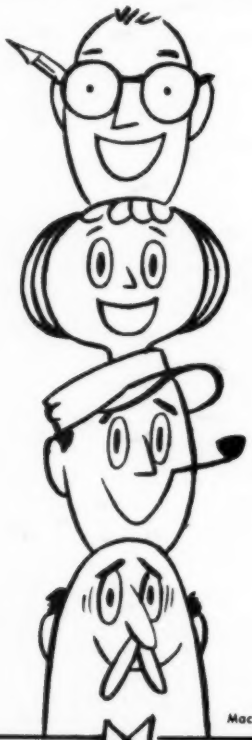
While the more obvious battles between the Reds and the free world grow in intensity, the more subtle economic warfare also heads into a period of increasingly bitter and hard-fought activity.

This country, however, is at a serious disadvantage. Efforts to increase U. S. sales and investments abroad, which would help offset Soviet bloc forays and increase production and economic activity in this country, are continually running into blocks presented by wage rates, tariffs, and budgets.

Efforts of the U. S. Commerce Department to expand exports, widely praised a year ago as a "new weapon," will barely get off the ground. Congress, showing little confidence in the project, allowed only a third ($1.1 million) of the funds requested to put the show on the road.

Tariff negotiators from this country are in Switzerland now trying to work out reciprocal trade deals with 32 other friendly nations to cut high tariffs in foreign countries. But they still hear the shouts of U. S. companies, already smarting under foreign competition, against any further reciprocal cuts in the U. S. tariffs. The developing European common market and the newer "Outer Seven" European trade bloc are using restrictive quotas to keep foreign goods out of their areas.

EVERYBODY'S GIVING



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by Maimonides

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He who gives what he should, but only after he is asked.

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